

What is Claimed:

1. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block is capable of mounting a plurality of cassettes storing sample to be processed at a front part of said vacuum processing apparatus and containing a first sample transfer means for transferring said sample in an atmosphere,

each of said plurality of vacuum processing blocks contains a load lock chamber, a vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said vacuum processing chamber and said load lock chamber,

said first sample transfer means is a common transfer means for transferring said sample between said plurality of cassettes mounted at a front part of said vacuum processing apparatus and said load lock chambers included in each of said plurality of vacuum processing blocks, said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

2. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block is capable of mounting a plurality of cassettes storing sample to be processed at a front part of said vacuum processing

apparatus and containing a first sample transfer means for transferring said sample in an atmosphere between said one cassette block and said plurality of vacuum processing blocks,

each of said plurality of vacuum processing blocks contains a load lock chamber, a vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said vacuum processing chamber and said load lock chamber,

said first sample transfer means is arranged between said plurality of cassettes mounted at a front part of said vacuum processing apparatus and said load lock chambers included in each of said plurality of vacuum processing blocks, and is moved in a horizontal direction toward a direction where said plurality of cassettes are arranged, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

3. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block is capable of mounting a plurality of cassettes storing sample to be processed at a front part of said vacuum processing apparatus and containing a first sample transfer means for transferring said sample in an atmosphere,

each of said plurality of vacuum processing blocks containing a load lock chamber, a vacuum processing chamber for processing said sample and

a second sample transfer means for transferring said sample,

said first sample transfer means is a common transfer means for transferring said sample between said plurality of cassettes mounted at a front part of said vacuum processing apparatus and said load lock chambers included in each of said plurality of vacuum processing blocks, said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

4. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block is capable of mounting a plurality of cassettes storing sample to be processed at a front part of said vacuum processing apparatus and containing a first sample transfer means for transferring said sample in an atmosphere between said cassette blocks and said plurality of vacuum processing blocks,

each of said plurality of vacuum processing blocks contains a load lock chamber, a vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample,

said first sample transfer means is arranged between said plurality of cassettes mounted at a front part of said vacuum processing apparatus and said load lock chambers included in each of said plurality of vacuum processing blocks, and is moved in a horizontal direction toward a direction where said plurality of cassettes are arranged, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

5. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block contains a cassette table for mounting a plurality of cassettes storing sample to be processed and a first sample transfer means for transferring said sample in an atmosphere,

each of said plurality of vacuum processing blocks contains a load lock chamber, a vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said vacuum processing chamber and said load lock chamber, and

said first sample transfer means is a common transfer means for transferring said sample between said plurality of cassettes mounted on said cassette table and said load lock chambers included in each of said plurality of vacuum processing blocks, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

6. A vacuum processing apparatus comprising a plurality of vacuum processing blocks and one cassette block arranged at a front part of said plurality of vacuum processing blocks, wherein

said one cassette block contains a cassette table for mounting a plurality of cassettes storing sample to be processed and a first sample transfer means for transferring said sample in an atmosphere between said one cassette block and said plurality of vacuum processing blocks,

each of said plurality of vacuum processing blocks contains a load lock chamber, a vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said vacuum processing chamber and said load lock chamber, and

said first sample transfer means is arranged between said plurality of cassettes mounted at said cassette table and said load lock chambers included in each of said plurality of vacuum processing blocks, is moved in a horizontal direction toward a direction where said plurality of cassettes are arranged, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

7. A vacuum processing apparatus according to any one of claims 1 to 6, wherein said load lock chamber is divided into a load side load lock chamber and an unload side load lock chamber.

8. A vacuum processing apparatus comprising:

one cassette block capable of mounting a plurality of cassettes storing sample to be processed and containing a first sample transfer means for transferring said sample in an atmosphere,

a first vacuum processing block containing a first load lock chamber, a

first vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said first load lock chamber and said first vacuum processing chamber,

a second vacuum processing block containing a second load lock chamber, a second vacuum processing chamber for processing said sample and a third sample transfer means for transferring said sample between said second load lock chamber and said second vacuum processing chamber, wherein

said plurality of cassettes is capable of being arranged at a front part of said vacuum processing apparatus,

said first sample transfer means is a common transfer means for transferring said sample among said plurality of cassettes mounted at a front part of said vacuum processing apparatus, said first load lock chamber and said second load lock chamber, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

9. A vacuum processing apparatus comprising:

one cassette block capable of mounting a plurality of cassettes storing sample to be processed and containing a first sample transfer means for transferring said sample in an atmosphere,

a first vacuum processing block containing a first load lock chamber, a first vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said first load

lock chamber and said first vacuum processing chamber,

a second vacuum processing block containing a second load lock chamber, a second vacuum processing chamber for processing said sample and a third sample transfer means for transferring said sample between said second load lock chamber and said second vacuum processing chamber, wherein

said first sample transfer means is arranged among said plurality of cassettes mounted at front part of said vacuum processing apparatus, said first load lock chamber and said second load lock chamber, and is moved in a horizontal direction toward a direction where said plurality of cassettes are arranged, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

10. A vacuum processing apparatus comprising:

one cassette block capable of mounting a plurality of cassettes storing sample to be processed and containing a first sample transfer means for transferring said sample in an atmosphere,

a first vacuum processing block containing a first load lock chamber, a first vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said first load lock chamber and said first vacuum processing chamber,

a second vacuum processing block containing a second load lock chamber, a second vacuum processing chamber for processing said sample

and a third sample transfer means for transferring said sample between said second load lock chamber and said second vacuum processing chamber, wherein

said cassette table is capable of being arranged at a front part of said vacuum processing apparatus,

said first sample transfer means is a common transfer means for transferring said sample among said plurality of cassettes mounted on said cassette table, said first load lock chamber and said second load lock chamber, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

11. A vacuum processing apparatus comprising:

one cassette block containing a cassette table capable of mounting a plurality of cassettes storing sample to be processed and containing a first sample transfer means for transferring said sample in an atmosphere,

a first vacuum processing block containing a first load lock chamber, a first vacuum processing chamber for processing said sample and a second sample transfer means for transferring said sample between said first load lock chamber and said first vacuum processing chamber,

a second vacuum processing block containing a second load lock chamber, a second vacuum processing chamber for processing said sample and a third sample transfer means for transferring said sample between said second load lock chamber and said second vacuum processing chamber,



wherein

said cassette table is capable of being arranged at a front part of said vacuum processing apparatus,

said first sample transfer means is arranged among said plurality of cassettes mounted at said cassette table, said first load lock chamber and said second load lock chamber, and is moved in a horizontal direction toward a direction where said plurality of cassettes are arranged, thereby

said sample is taken out of one of said plurality of cassettes, transferred into one of said plurality of vacuum processing blocks and processed sample at said vacuum processing blocks is returned back to an original position of the original cassette.

12. A vacuum processing apparatus according to any one of claims 8 to 11, wherein said first load lock chamber and said second load lock chamber are constituted together while being separated into a load-side load lock chamber and an unload-side load lock chamber.

13. A vacuum processing apparatus according to any one of claims 8 to 11, wherein a first cassette is capable of being arranged at a front part of said first vacuum processing block, a second cassette is capable of being arranged at a front part of said second vacuum processing block and a third cassette is capable of being arranged between said first vacuum processing block and said second vacuum processing block.

14. A vacuum processing apparatus according to any one of claims 8 to 11, wherein a maintenance space is present between said first vacuum processing block and said second vacuum processing block.

15. A vacuum processing apparatus according to any one of claims

1 to 6 and 8 to 11, wherein said first sample transfer means has one atmospheric robot run on a common rail.